REMARKS

At the outset, the Applicants wish to thank the Examiner for the thorough review and consideration of the subject application. The Non-Final Office Action of March 26, 2003, has been received and its contents carefully noted. Claims 1-2, 4-7, and 9-17 have been amended and claims 3 and 8 are cancelled. Accordingly, claims 1-2, 4-7, and 9-17 are currently pending.

In the Office Action claims 1-5 and 7-16 were provisionally rejected under 35 U.S.C. § 101 for allegedly claiming the same invention as claims 1-5, 8-17 and 32-35 of co-pending Application No. 10/068,074; claims 6 and 17 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being allegedly unpatentable over claims 6, 17, and 30-31 of co-pending Application No. 10/068,074; and claims 1-17 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Abstracted Publication No. SU 536148A of Patent Assignee Demin A V ("Demii") combined with Japanese Patent Abstract No. JP 530943131A of Patent Assignee Ibigawa Electric KK ("Ibig") and Abstracted Publication No. SU 973509A of Patent Assignee Beloogroskii V D ("Beloi"), in view of U.S. Patent No. 3.309,437 issued to Harnett, Great Brittan Patent No. 1,480,690 issued to Madley et al. ("Madley"), and Encyclopedia of Chemical Technology authored by Kirk-Othmer. Applicants respectfully traverse these rejections and reconsideration is hereby requested.

Provisional Statutory Double Patenting Rejection

The Examiner provisionally rejected claims 1-5 and 7-16 under 35 U.S.C. § 101 for allegedly claiming the same invention as claims 1-5, 8-17 and 32-35 of co-pending Application

No. 10/068,074. Applicants respectfully submit the rejections are moot in view of the claimed amendments.

Provisional Obvious Type Double Patenting Rejection

The Examiner provisionally rejected claims 6 and 17 under the judicially created doctrine of obviousness-type double patenting as being allegedly unpatentable over claims 6, 17, and 30-31 of co-pending Application No. 10/068,074. Applicants respectfully submit the rejections are moot in view of the claimed amendments.

Rejections Under 35 U.S.C. §103

The Examiner rejected claims 1-17 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Abstracted Publication No. SU 536148A of Patent Assignee Demin A V ("Demii") combined with Japanese Patent Abstract No. JP 530943131A of Patent Assignee Ibigawa Electric KK ("Ibig") and Abstracted Publication No. SU 973509A of Patent Assignee Beloogroskii V D ("Beloi"), in view of U.S. Patent No. 3.309,437 issued to Harnett, Great Brittan Patent No. 1,480,690 issued to Madley et al. ("Madley"), and Encyclopedia of Chemical Technology authored by Kirk-Othmer. Applicants respectfully traverse these rejections and reconsideration is hereby requested.

Claim 1 is allowable over the cited references in that claim 1 recites a combination of elements including, for example, "an abrasive carbon foam produced by controlled foaming a blend of materials, comprising: about 90 to about 99% by volume of a particulate coal exhibiting

a free swell index ranging from about 3.5 to about 5.0; and about 1 to about 10% by volume of a carbide precursor powder capable of reacting with carbon during carbonation and graphitization." None of the cited references either singly or in combination teaches or suggests at least these features of the claimed invention.

More specifically, Demii is directed towards a refractory of high thermal conductivity comprising petroleum coke with a density of 2.6 g/cm^3, not abrasive carbon foam from particulate coal as required by claim 1. Further, Beloi is directed toward the preparation of antifriction articles utilizing coke and does not disclose a particulate coal exhibiting a free swell index of between about 3.5 and 5.0 as required by claim 1. Additionally, Ibig is directed toward and acid resistant carbon producer and fails to disclose between about 3.5 and 5.0 as required by claim 1.

Claim 1 is allowable as none of the cited references teach or suggest, "an abrasive carbon foam ... comprising: about 90 to about 99% by volume of a particulate coal exhibiting a free swell index ranging from about 3.5 to about 5.0" as required by claim 1. Additionally, none of the cited references teach or suggest, "an abrasive carbon foam ... comprising ...about 1 to about 10% by volume of a carbide precursor powder capable of reacting with carbon during carbonation and graphitization" as required by claim 1.

Further, the Examiner alleges, Harnett discloses:

> [A] porous based product having compressive strength typically in excess of 5,000 psi (note column 4, lines 1-9) when heated to 950° C and an apparent density of 0.93 g/cc (note Table 1 for Examples 4 and 5) and further graphitizing (note column 5, lines 20-44) which anticipates claims 1-4 of Applicant.

See Office Action at 4.

In contradistinction to the Examiner allegations, Harnett does not teach or suggest, for example, "an abrasive carbon foam ... comprising: about 90 to about 99% by volume of a particulate coal exhibiting a free swell index ranging from about 3.5 to about 5.0" as required by claim 1. Rather, the Examiner admits Harnett, Ibig, Beloi, and Demii are materially deficient as references as they do not disclose a coal based product having a free swell index of between about 3.5 and about 5.0. (Office Action at 4). Accordingly, Applicants respectfully request clarification of the record as to the Examiner's position that claims 1-4 are anticipated by Harnett, followed by the Examiner's admission that Harnett is materially deficient as to claim 1.

Nevertheless, in order to cure these deficiencies of Harnett, Ibig, and Beloi, the Examiner appears to rely on Kirk-Othmer, Madley, Koppelman and/or Official Notice. Applicants respectfully request clarification of the record as Koppelman is not mentioned in the preface paragraph of the rejection nor is Koppelman cited in the Notice of References Cited. Accordingly, Applicants are assuming that the mentioning of Koppelman is for background art purposes only and request clarification of the rejection if this is not the Examiner's intention.

Further, the Examiner may take official notice of facts outside of the record which are capable of instant and unquestionable demonstration as being "well-known" in the art. *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970). As set forth in MPEP § 2144.03, if an applicant traverses an assertion made by an Examiner while taking official notice, the Examiner should cite a reference in support of their assertion. Specifically, it appears the Examiner is relying on official notice that the use of particulate coal exhibiting a free swell index of between 3.5 and 5.0 for an abrasive carbon foam is well known. Additionally, the Examiner appears to state abrasive carbon foam having a density as required by claims 6 and 17 is well-

known. Applicants respectfully traverse the use of official notice in the rejection and request a reference to support the Examiner's allegations.

Additionally, in levying an obviousness rejection under 35 U.S.C. § 103, the Examiner has the burden of establishing (1) some suggestion or motivation to modify the reference or to combine reference teachings, (2) a reasonable expectation of success, and (3) that the prior art references, when combined, teach or suggest all the claim limitations. *See* MPEP § 2143 (8th Ed., Rev. Feb 2003). "Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Examiner's burden in levying an obviousness rejection is discussed above. The Federal Circuit recently emphasized the importance of evidencing the requisite motivation to combine references when rejecting claims based upon obviousness. *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002). In the present case, the Examiner has failed to make the requisite showing, as articulated in *Lee* and its predecessors, of a motivation to combine Demii, Ibig, Beloi, Harnett, Madley and Kirk-Othmer. Accordingly, the Examiner has failed to establish a *prima facie* case of obviousness and Applicants respectfully request the rejection under § 103 be withdrawn.

Even assuming *arguendo*, that the references are properly combined, Kirk-Othmer and Madley fail to cure the deficiencies Demii, Ibig, Beloi, and Harnett.

Kirk-Othmer is directed to coal caking properties that make good quality coke - not foam. In contrast to the present invention coke is not an abrasive carbon foam. Coke is a fairly dense mass that has non-uniform, irregular pore sizes. Abrasive carbon foam may be of substantially uniform pore structure and is typically less dense than coke. Further, it appears that the Examiner is relying on the teaching of Kirk-Othmer on page 455 for teaching "[t]he best cokes

come from coals having indexes between 4 and 9" and Table 4 representing a coal classification table. However, none of the cited references teach or suggest, "an abrasive carbon foam ... comprising: about 90 to about 99% by volume of a particulate coal exhibiting a free swell index ranging from about 3.5 to about 5.0" as required by claim 1.

Additionally, Madley fails to cure the deficiencies of Kirk-Other, Demii, Ibig, Beloi, and Harnett. Madley is directed to making a briquetting coal by heating low-rank, high volatile coal particles in a fluidized bed reactor in the presence of oxygen followed by heating to 600 to 900° C. The coal is then added to a caking coal for briquetting by using for example, a double roll press. *See* Madley, col. 1-2.

For at least the foregoing reasons, the Examiner has not established a *prima facie* case of obviousness and respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claim 1, and claims 2 and 4-6, which depend from claim 1.

Claim 7 is allowable over the cited references in that claim 7, recites a combination of elements including for example, "a method for producing an abrasive carbon foam . . . comminuting coal exhibiting a free swell index ranging from about 3.5 to about 5.0 to form a particulate coal." None of the cited references either singly or in combination teaches or suggests at least these features for at least the similar reasons as discussed above with respect to claim 1.

Additionally, none of the cited references teaches or suggests, "blending said particulate coal with about 1 to about 10% by volume of a carbide precursor powder to form a reactive blend; and controllably heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging from about 300° C to about 600° C and soaking at this temperature for a period ranging from about 10 minutes to about 12 hours to form an open celled material" as

required by claim 7. Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claim 7, and claims 9-11, which depend from claim 7.

Claim 12 is allowable over the cited references in that claim 12, recites a combination of elements including, for example, "an abrasive carbon foam manufactured by a process, comprising: comminuting coal exhibiting a free swell index ranging from about 3.5 to about 5.0 to form a particulate coal." None of the cited references either singly or in combination teaches or suggests at least these features for at least the similar reasons as discussed above with respect to claim 1.

Additionally, none of the cited references teaches or suggests, "blending said particulate coal with from about 1 to about 10% by volume of a carbide precursor to form a reactive blend; heating said reactive blend in a mold under a non-oxidizing atmosphere to a first temperature ranging from about 300° C to about 600° C at a heat up rate ranging from about 1° C to about 20° C and holding at the first temperature for a period ranging from about 10 minutes to about 12 hours to form a green foam blend; controllably cooling said green foam blend to a second temperature below about 100° C" as required by claim 12. Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection of claim 12, and claims 13-17, which depend from claim 12.

CONCLUSION

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response; the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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